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Collaborative speculation: Anticipation, inclusion and designing counterfactual futures for appropriation

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ABSTRACT

How do people become conversant with futures-in-the-making? This paper explores speculative design from the position that futures have agency in the present and therefore forms of speculation – as well as futures – need to be inclusive. Regarding this as a democratic right throws attention on engagement processes, noting that speculation is often centred on the designer's interests rather than seeding appropriation by publics. I argue that situating speculation in a way that is accessible for negotiation requires careful attention to the hybrid *process + object* artifacts that result from designing both a provocation and a process for encountering it. My central case study describes one such hybrid artifact, a counterfactual workshop for considering futures by exploring different imagined pasts and making a journey towards alternative presents. This play of temporalities – and the accompanying methods for opening and narrowing the creative work of taking these journeys – suggest a means that speculative design might be situated with participants, thereby simultaneously reflecting on and mitigating the anticipatory nature of the materials. I deconstruct this instance of curating speculative artifacts to reveal not only its mechanisms, but the many points where engagement processes reflect political choices.

1. Introduction

In much speculative design work, objects made to inspire thought about alternative futures are the product of a designer's specific concerns and reflect them strongly. The strength of this commitment necessarily narrows the space of alternatives and/or interpretation by others. It thus brings new anticipatory objects into the world and, while increasing the diversity of imagined futures, adds more ballast to the weight of 'existing' futures affecting our present. Are there forms of speculative design that can carry this anticipatory power lightly and open up speculation to greater shaping by others?

As I have come to understand the power relations implicit in anticipation, my design practice – which began in participatory design of socio-technical systems and, longer ago, experiential learning to inspire young people's potential – has attended to the political potential in opening up decision-making by, first, making 'the future' more approachable in everyday life (Light, 2011); then exploring democratic power to impact futures (e.g. Light, 2015; Light, 2020). It is this agency that I consider here, as part of a reflection on the nature of anticipatory and speculative practices. I have argued that 'there are politics to futures in the present, and ethics to one's methodology for impacting them, neither of which are often articulated in mainstream design discourse' (2015). This is my starting point here too. The paper aligns with work seeking to make anticipation more accessible and does so particularly in the context of a

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need to rethink how humans live with each other and others species in the face of 21 st century urgencies.

1.1. Anticipation as a form of present future

Brassett and O'Reilly (building on Poli, 2010, 2017; Miller, 2012) succinctly define a system that anticipates as 'one that models a future, brings it into its present and bases decision-making upon this model'. This modelling 'reorganizes the system and its present in such a way that one can say that the future is causing a present state'. (p4–5, Brassett & O'Reilly, 2021). Kimbell and Vesnić-Alujević (2020) talk of anticipation as 'a collective capacity to imagine and use futures in the present,' (p97) and Kendig and Bauchspies (2021) address *speculative anticipation*, not as 'logical spaces of possibility', but as 'a moral space of possibility where what one conceives of as possible in the future influences the choices made in the present' (p229). In each definition, the agency of *futures imagined* shows how powerful it is to control these narratives. Futures are not remote, but actively participate in creating decisions now. It is therefore important that such speculation is not the preserve only of designers, futurologists and policy-makers. Navigating and extending the futures open to us is a basic right of democratized life: for the future, but also for the ongoing being-shaped present.

1.2. Agency and futures

Those who can perceive the working of futures on the present have a different orientation in attempting to manage personal or mutual benefit, and, indeed, different power to those for whom such things are obscure. Once minded to consider anticipation, it is also obvious that the power to control these narratives is as unequally spread across societies as other material and conceptual resources. After Miller (2012), Poli comments on this power: 'Future literacy, like language literacy, involves the acquisition of the knowledge required to "use the future" appropriately —that is, in a manner fit for purpose.' (p110 Poli, 2015). This is a fundamental tenet of living as self-aware creatures: we do not know the future temporally, but not to know the impact of beliefs about it as citizens, consumers and subjects is to be constrained to live other people's beliefs and, ultimately, their futures.

To make this point, Poli likens future literacy to a capability and notes that all other capabilities are in relation to futures (and the chance to exert them and the conviction that we may do so), making future(s) literacy 'one of the most relevant – if not the most relevant – value-generating, sense-making' forces (p108 Poli, 2015). None of our agency as individuals is free of a sense of what potential will be available to us. So 'the exercising of "anticipatory consciousness" as an active political subjectivity' (Amsler & Facer, 2017b) underlies other forms of agency.

1.3. Opening up anticipation to design

If we acknowledge that futures literacy leads to capability, it follows that publicly-negotiated anticipation - being able to understand, collaborate upon (and exert some agency on) how futures are made - is not merely part of democratizing, it is a tenet of it and to design for democracy requires a brush with it, not least if we acknowledge the politics possible in participatory design (e.g. Ehn & Badham, 2002; Binder, Brandt, Ehn, & Halse, 2015).

There is, of course, a difference between opening up anticipation and anticipating an open future. Mazé and Wangel (2016) take the field of Futures Studies to task for a linear, techno-centric approach to what is to come. They point to futures that are neither empty nor determined by the material and technical elements of the present. Andersson's (2018) insights tune to this critical discourse. The future has been historically left in limbo by neglect of the past: now 'a fundamentally hollowed out category' as if 'empty to be filled with new forms of meaning' (p2). These politically-charged thinkers analyze the kind of futures being imagined and vie with a more positivist tradition of optimizing prediction and managing risk, where narrowing the future supports policy development. In Poli (2015) description of 'the knowledge required to "use the future" appropriately —that is, in a manner fit for purpose' we hear something of this risk-oriented position, echoing a design tradition where 'fit for purpose' is the designer's only criterion of success, taking a service role that never questions what that purpose is.

Bringing design to futures can also be more radical than serving existing purposes. Kimbell and Vesnić-Alujević (2020) note that, together, 'futures and design can be seen as a capacity to bring publics and policy issues into view' where practices pluralize and problematize understandings of issues and uncertainties (p99). Design and the field of Anticipation necessarily have a relationship in their mutual interest in the mechanics of control. Participatory designers Zamenopoulos and Alexiou (2020) explicitly link the two fields, calling design 'a special type of anticipatory phenomenon' (p2) and Celi and Morrison point the other way in arguing that design is a critical foundation for anticipation as the domain that *makes* futures (2017). Making futures can be participatory (Ehn, Nilsson, & Topgaard, 2014). Talking of her design work, Kimbell (2021) describes an anticipatory form of representation, materializing 'data in novel ways to open up relations between publics, audiences and participants, anticipating future ways of living and being in response to public issues' (p186–7). As Brassett and O'Reilly (2021) describe it, 'design contributes to 'immediate existence' (or even wholly constructs it)' such that 'locating the possibilities for such existence to manifest itself is important act of creativity and futures thinking coming together' (p2 Brassett & O'Reilly, 2021).

The purposeful transforming of materials and/or systems (which I make my definition of designing) is future-oriented and cannot come to pass without an anticipated future in which some intended transformation is underway, though what/how may be more or less open. This has to include 'the knowledge required to "use the future" appropriately —that is, in a manner fit for purpose' (Poli, 2015) and therefore, must be subject to anticipation, although designers may not see themselves making futures and may do so in one, tightly delineated, way. But this relation also points to a form of designing that acknowledges its anticipatory nature and can reference it.

In contrast with this position, design literature, as a whole, concerns itself more with *speculation* than the more explicit politics of

anticipation, the latter being a term which has largely been understood as an *affective* looking ahead (e.g. McCarthy & Wright, 2004; Odom et al., 2014). This vernacular understanding is only loosely related to Anticipation as a field. But, when Design engages in speculation, it takes many of the challenges found in Futures and Anticipation Studies with it.

2. Curating speculation

While the field of Design has only a limited embrace of anticipation in the way it is understood in the policy and futures literatures, it welcomes speculation in the form of speculative design. *Future-thieving* (Lutz, 2020) offers a poetic description: ‘stealing a dystopian artifact from a future that may never exist to prevent it from plaguing the world tomorrow’ (np).

This definition reveals the ethical mission that speculative design has at heart: to provoke thought about how we might live. Related to *critical design*, with its goal, not of making workable products, but of critiquing them to reveal different possible futures, speculative objects and processes can help both designers and others think from new perspectives. Speculative design finds its expression in things or narratives designed for response (e.g. Auger, 2013), rather than to fill a gap or solve a problem. However, in the context of democratizing futures, we can observe that this critical anticipatory intent is not always accompanied by a process that lifts the artifact from spectacle or wonder towards a generative contemplation of futures and their influence. The speculation does not always perform inclusively to increase agency, even while it provokes thought about possibilities. Auger (2014) describes the role of speculative design in living with robots: ‘The aim is not to predict, sensationalise, politicise, demonise, or canonise specific technologies or agendas. Instead, to place emerging technologies into real-life contexts, communicating how these would be manifest through tangible evidence [to] allow the viewer to contemplate what life might be like in the depicted future or alternative present’ (p26). In such a process, though the aim is to inspire contemplation of alternatives, the focus is clearly articulated by the designer and so is the context. Auger specifically says of this work that the aim is not to politicize, but to communicate how robots could manifest.

Taking another popular example, we see Dunne and Raby (2013) suggesting that speculative design is suited to addressing the potential for multiple futures. They say ‘We rarely develop scenarios that suggest how things should be because it becomes too didactic and moralistic. For us futures are not a destination or something to be strived for but a medium to aid imaginative thought.’ (p2). This openness is exciting, yet, without developing and interrogating the theme of didacticism, the thought being aided may be limited, or even merely the designer’s own. Here, Dunne and Raby take a largely apolitical approach to their critical objects. In other words, stimulating discussion of (a range of) specific designs and technical developments is distinct from raising political concerns as to how design and development contribute to our futures or have impact on our presents.

2.1. The product and process of speculative designing

Speculative design practices can reveal potential future impacts, but, at their most insular, they can also exist *only* as an anticipatory object, adding ballast to the futures around us. There are two aspects to this. First, such an artifact may have an anticipatory impact, but no speculative impact. Speculative artifacts carry the weight of prediction in their designer’s vision. In warming us up to a particular focus, speculative designers may merely contribute to the range of futures haunting the world.

Relatedly, speculation exists between a vision and an actuality and it is not an automatic outcome of creating an anticipatory object. It needs engagement and so it needs mediation. This second point relates to mission, but is also practical: it matters how speculative objects are embedded in a process. Mediation involves an impetus from one side, but also a reaction and change that is in relation to that impetus from another. The nature of the impetus (an opportunity for reflection or an opaque and wondrous puzzle) has impact on the possibility and nature of what is revealed, along with the context of its reception (and has implications for how we assess its impact). The power structures of such revelation (choosing what is to be revealed) and the agency of an impetus as it is enacted (whether and what it reveals) point to the importance and responsibilities of *designing for speculation to happen* as well as producing an object.

In other words, a simple placing of an object/narrative in public view, without creating an interpretive process round it, may not give rise to any critical or speculative thought. In other language, it may not construct an interested public around it (see Marres, 2015). At the extremes, the absence of any focusing object leaves only a process of engagement with no direction; meanwhile, the absence of a process of engagement leaves only an object with the possibility of myriad personal engagements or none, but no shared construction of meaning. Given the languages, cultures and different cognitive orientations to be found across the world, the means of stimulating alternative thinking are unlikely to be found in one, even hybrid, speculative device, but without any engagement, there is a fair chance that it will not even speak in its own language, culture, etc. Table 1 sums this up in the starkest, most categorical, terms.

Process mediates and its design does not have to be controlled by one party, but it has to be initiated and created somewhere. Mediation can be more or less open or collaboratively achieved and can rely on different forms of material/narrative objects, with more or less critique intended and all this is managed to move people from innocence of all contact to participants engaging intellectually and affectively.

Table 1
Artifacts vs processes of engagement.

Speculative device:	object-no engagement process	engagement process-no object
Reception:	interesting but irrelevant	inclusive but pointless
Anticipatory baggage:	high	negligible

For instance, an example that synthesizes open and directive qualities in a clear process of engagement is Candy's *Experiential Futures* (2010), bringing scenarios to life through the creation of immersive situations that give people a taste of different futures. For his doctorate (ibid), 550 people experienced four contrasting versions of Hawaii 2050, each manifesting an alternative theory of change. By experiencing a series of 'futures' for comparison, rather than a single narrative, participants are not simply accepting or rejecting an encounter; they are piecing together different potentials for themselves. Another synthetic approach is *counterfunctional things* (Pierce & Paulos, 2014), where things that work differently are juxtaposed with existing media technology to help stimulate reflection on the changed objects.

This chart (Table 2) - and the relational idea in the process of engagement - also points to two distinct streams in Anticipation and Futures work - the educational strand, where futures literacy is primary and a critical stance accompanies it (e.g. Amsler and Facer's special issue on anticipatory education, 2017a). This has an emphasis on responsive process and its impact is as important as generalizable findings. Consequently, educational forms tend towards person- and group-centred open-ended methods, exemplified in much material for use with young people (e.g. Amsler & Facer, 2017b; Renold & Iverson, 2019; Miller, 2019). As Renold and Iverson (2019) describe it, '[a]rtful praxis enables us to create speculative events that are radically unpredictable and enable new things to be felt, made and enacted.' (p3). Contrasting is work where those engaged in speculating - whether experts or ordinary publics - are presented with tightly controlled variables as a way of managing what is learnt to feed it back into systems to model futures better. Here, the goal is consultative, reproducing the process of engagement as precisely as possible between groups for rigour. These classic modeling techniques tend to a positivist tradition, testing out different variables - often in four-quadrant scenarios - with the goal of designing and developing optimized research tools for managing risk. Both of these traditions place emphasis on the process of engagement for these different ends.

However, within design, we more commonly hear about the material and narrative aspects of speculative design objects, rather than the method of deployment and how these interplay. In the next sections, I go into more detail about this, before deconstructing a case study that attempts to blend object and process explicitly for democratizing futures.

2.2. The artifacts of speculation

The scenario narrative has become a heavily-used speculative object, presenting an alternative state to be reckoned with. Scenario development is the 'archetypical product of futures studies' and the 'discipline's stock-in-trade' (p5 Bishop, Hines, & Collins, 2007). As well as a staple of consultation, narratives are a frequent mechanism in co-designing futures. Design fiction scenarios are well documented by design researchers, from Blythe (2014) to Morrison, Tronstad, and Sneve Martinussen (2013) to Tseklevs et al.'s codesigns for healthcare futures (Tseklevs, Darby, Whicher, & Swiatek, 2017). Lindley and Coulton wrote of design fiction's 10-year history in 2015 (2015). Ambe, Brereton, Soro, Buys, and Roe (2019) specifically offer an inclusive method for exploring futures through co-design of fictions with older participants in technology development. Reitsma, Wessman, and Önnvall (2017) present 'stories' in their codesign work and argue that using a story as stimulus is different from a scenario, prioritizing what a character feels about the situation and 'thereby making them easier to emotionally engage in' (s1819). Further, the sketch story method they choose makes suggestions instead of stating conclusions and so 'invites the audience to imagine what came before or what will follow after' (s1820). Scenarios (and stories) organize visions, presenting and constraining them in ways designed to seek a response.

Narratives, in other words, tend to require embedding, at the very least in some reading process. By contrast, speculative design in the form of a controversial material artifact is more often presented on its own merits and may not seek to have a context that shapes the encounter, or it may use media interviews and reports for framing. With Auger's *Audio Tooth Implant* from 2000, which even now is described as if it exists (<http://www.auger-loizeau.com/projects/toothimplant>), there is an element of shock. Similarly eye-catching, Jeremijenko's "Feral Robots" are dogs that 'follow concentration gradients of the contaminants they are equipped to sniff', providing 'the opportunity for evidence-driven discussion' and facilitating 'public participation in environmental monitoring and remediation' (www.artandpopularculture.com/Natalie_Jeremijenko, np/nd). This work is notable for winning attention and media coverage, though how public participation is arranged is not mentioned in documentation.

Situating speculative objects in everyday surroundings, Wakkary, Odom, Hauser, Hertz, and Lin (2015) christened the process of opening up alternatives through design *material speculation*, where: 'the material existence of specifically designed artifacts situated in the everyday represent a unique and productive approach to critical inquiry' (p98), shifting 'the authority of the interpretation to the "imager" or "user"' (p98) and bridging 'between our current world and an imagined critical alternative or transformed view of our

Table 2

Offers some of the dimensions over which a hybrid *process + object* can be designed, with a suggestion that some choices are more democratizing; some keep power with the designer/other authoritative players. However, all of these aspects are gradients and individual processes may weave between poles or only live between them. Fig. 2: Some dimensions of mediation in working with publics on futures.

Aspects of mediation	More democratic	More designer controlled
Stimulus	Open	Directive
Orientation	Co-created	Consultative/illustrative
Participation	Collaborative	Individual
Form	Seed	Finished object (material/narrative)
Focus	Educational	Informational
Audience	Intimate publics	Media (though not always controlled by the designer)
Origin	Invited/collectively agreed	Initiated exogenously

world.’ (p99). Mention of ‘situated in the everyday’ reflects the process of engagement that is tacitly built round these objects, though perhaps without the level of methodological scrutiny given to scenarios.

Material objects also play other, more negotiated, roles. Gerber’s (2018) alternatives-to-policing study asks community members to imagine futures where neighborhoods are kept safe through new means. Speculative props are designed to materialize community members’ visions and to provoke conversation around them. Of this, Gerber (2018) says, ‘depending on a central designer to represent people’s voices involves a heavy responsibility to represent those voices authentically’ (p4). Gerber is concerned that the speculative dimension stays with the community. We see something similar in Korsmeyer, Light, and Grocott, 2021, *this volume*).

These objects reveal a diverse sense of where speculative objects sit and how to use them as stimulus. There is no single methodological approach and since most designers are seeking something different with their engagements, no expectation there should be. Yet, Gerber (2018) points out the priority within speculative and critical design tends to be on ‘aesthetic vision rather than enabling a collaborative process of imagination’ (p. 2). Furthermore, she argues that speculative design rarely manages to reach or involve those who are affected by the implications of the issue they address. Speculative design is often clever, but this very cleverness can be detrimental to accessibility.

Speculative design has been described as taking an elitist, Western, patriarchal approach (Prado de Martins, 2014), concentrating on: ‘near futures that deal with issues that seem much more tangible to their own privileged crowd’ (Prado de Martins & Oliveira, 2014). This critique joins Gerber’s, of aestheticisation at the expense of process (2018), and Wong and Khovanskaya (2018) history of speculative design as coming out of critical art practice and losing some criticality.

2.3. From scenario to seed

In 2008, researchers troubled by the anticipatory content of scenarios as a way of understanding technological futures, argued for ‘seeding not leading’ (Light, Blythe, & Reed, 2008). Light, Blythe et al. (2008) contrasted the take-it-or-leave-it scenario with the omni-directional seed (Fig. 1):

- *Scenarios* offer those that work with them a story to accept or reject, develop or critique.
- *Seeds* are smaller units of content, designed to allow thoughts to go in all directions.

The goal was ‘as small a seed of content stimulus as possible that would ensure that some relevant creative work could be undertaken, but that the nature of it would be determined by the participant’ (Light, Blythe et al., 2008). Whereas Reitsma et al. (2017) acknowledge and investigate the before-and-after of a linear storied approach, the ‘seed’ idea tries to remove the strong interpretive agency of the designer. With a seed as impetus, it is no longer possible to think in terms of stand-alone artifact: both semantically and structurally, a seed is a part of a generative process.

3. Counterfactuality

In reviewing speculative processes, a third theme to introduce - in advance of the case study - is *counterfactuality*. This is a temporal device looking back at how something might have been but was not. It makes an interesting context for considering anticipation, since it provides forks in history from which futures flow forward but not necessarily beyond the present day. Bendor, Eriksson, and Pargman (2021) argue that ‘the past, much like the future, can be approached as a plurality and a repository of potentiality’ (p2). They suggest counterfactuality as a resource for futurists, whereas I want to show how it can support the branch of anticipation that seeks to equip publics with greater understanding of how futures inform the present.

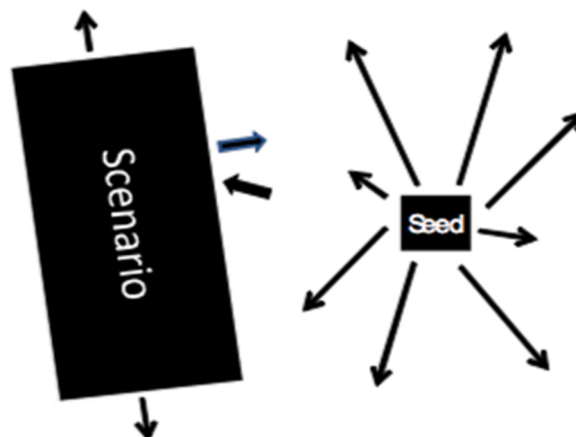


Fig. 1. The take-it-or-leave-it scenario vs the omni-directional seed (Light, Blythe et al., 2008).



Fig. 2. The five globes that hold briefs for the groups.

Arguably, all history is the study of what could have happened differently and is therefore counterfactual. Megill (2008) makes the distinction between *restrained* counterfactuality of this kind, in which small details differ (or interpretations differ in details), and radically alternate histories, which he describes as *exuberant*. In fiction, this exuberance appears, for instance, in *The Man in the High Castle* (1962) and *Fatherland* (1992), in which Germany and Japan win the Second World War. This exuberant approach allows discussion of different futures without having to project forward in time: from a fork in the past is built a different present. An example in futures thinking is Pargman et al. (2017) speculation on the different environmental outcomes possible today if less coal had been available 150 years ago. Theirs is a ‘thought experiment’ (p170), conducted in their paper to consider how related factors might have played out (i.e. it is a tightly designer-controlled narrative). In design, Huybrechts, Hendriks, and Martens (2017) have used counterfactuality to examine the design process and Forlano and Halpern (2018) use it for exploring automation in work contexts, asking ‘what are we looking at as history, what constitutes history’ and which history are we taking inspiration from? (2014, p48).

Nurturing a counterfactual fork is a creative process. It can be used to stir imagination while embedding the idea that the world is not inevitably as it seems. It is used, below, to work with the idea of educating about the ‘designed, therefore designable’ nature of the world as a means of developing transformative agency (Light, 2011, 2020). Involving both *fork* and *journey forward*, it can be made a *process + object* hybrid.

3.1. Employing the past

The *On Some Other World* workshop process uses material and narrative counterfactual artifacts to support envisaging. It is part of a long inquiry into the nature of seeds as embedded forms of engagement that promote transformative agency (more background is offered in Korsmeyer et al., 2021, this volume).

In this process, a group (20–25) is brought together for between 2 and 5 h, divided up, and small groups (3–5) are given ‘random’ globes containing information about a world like their own, but with one of five counterfactual histories. Based on this difference, groups chronicle their world, make designs for it, share their ideas and then reflect on the implications.

At the heart are globes (Fig. 2) and the narratives they contain. The globes’ contents are exuberant counterfactual narratives about pasts in which a major feature has been changed. This feature may be one of range of types of concern – material, infrastructural, financial, religious, philosophical, governance, sociotechnical or some intersection of these aspects – but it is for the recipients of the globe to decide how the future of that past transpired.

3.2. Two forms of anticipation

Bendor et al. (2021) call the process used in *On Some Other World* ‘recasting’. Recasting activities follow the same logical structure: *What if this had happened? Then what could have been the consequences?* (p6); this ‘allows futuring activities to explore unrealized histories that (did not but) could have occurred as a way of evoking the imagination.’ (p6). As well as recasting, the temporal manoeuvres offer opportunities for anticipation. In particular, there are two types in play.

With the first type of anticipation, the current present (t2) looms as an alternative future to the changed past (t1a) with/in which the participants are working. Decisions about trajectories and the construction of an alternative present (t2a) are set against the future that is our now (t2). These parallel narratives ironise each other. While it may not be helpful to invoke these moves at set-up, later there are places where these plays of temporality can be made into an opportunity for reflection.

The second type of anticipation is from the actual present (t2) into futures for our actual present (t3) - and back - in terms of how these futures inflect the present, noting that alongside the futures associated with our present (t2) are alternative futures (t3a) associated with the alternative presents (t2a) that the groups have generated by working on their briefs from the globe. This range of futures can go beyond the more common analysis of possible-probable-plausible future spaces/cones into a radical plurality of paths

and outcomes to discuss, which, coupled with the work on trajectories, is impetus for thinking about transformation.

4. Case study: designing a counterfactual form

Having explained the play of temporalities in using the counterfactual form and its purpose (to reveal the designed-therefore-designable nature of our world and encourage creative action), this section presents an account of the *On Some Other World* workshop and its design rationale.

4.1. Structuring divergent and convergent thinking

The workshop starts with an invitation for ‘exuberant’ counterfactuality (Megill, 2008): to abandon historical accuracy and take pleasure in thinking of the possible ramifications of a different starting point. Each group is asked to work through a process of Worlding, Chronicling, Creating and Analyzing, having been given a brief inside a globe (Fig. 2):

- 1 **Worlding:** *discuss this world, how it works and what the present would be like if this world were ours.* This introduces the ideas in the globe and the other participants, allowing people to extrapolate to alternative conditions.
- 2 **Chronicling:** *record the key features of this world in a story for sharing (written or otherwise), then read out the brief from the globe and tell your story to the other groups.* This establishes characteristics useful for the next stage and allows people to gain more insight by planning. Not least, the public element requires groups to agree about what to commit to.
- 3 **Creating:** *make a thing/system/service that reflects (the values of) this world, for presentation to the wider group.* (Beyond basic materials, people are encouraged to use whatever they can find, such as plants and rocks from outside the workshop space.) This encourages articulation of the world’s value system, making these choices more concrete through artifacts and using a different part of the reasoning system.
- 4 **Analyzing:** *share each artifact and discuss the outcomes, back in the whole group of 20–25, to consider:*
 - *how the values affect the design;*
 - *how this relates to our world(s);*
 - *what the process of imagining another world has revealed;*
 - *how the forks and temporalities have been used (in the overall structure and in the detail of each group’s working)*

This connects the creative work to more general concerns, supports thinking beyond the artifact/world, allows for discussion of potential ways-of-being and any transformative realizations that have accompanied the work. It can be facilitated in any way that promotes reflection and sharing.

As Fig. 3¹ helps to show, there are several moves in this process, alternating from opening up the creative space of imagination to constraining it to provide focus and/or structure (see Biskjaer, Dalsgaard, & Halskov, 2014 on valuing constraints in design). While such moves cannot be rendered as precise points on an axis, Fig. 3 loosely represents these alternating movements through the process of the workshop and gives a sense of how they narrow the focus to help the groups do design work. Groups move from a state of open anticipation at outset, when a closed globe is randomly given them (they know there is brief in the globe but not what it contains), to reading a brief, to making up details, to explaining their world to others. Randomness is used as a tactic to open up a sense of infinite possibilities before a series of stages allow participants to refine their thinking.

Each point of narrowing requires a commitment: first, to the brief, then the world, then the world’s key values, then the functioning of the design. When explaining the output of these stages to the wider group, the presence of the audience acts as a pressure point for committing to the story and requires each group to present - and even improvise - a coherent (if fantastical) world.

Conversely, there is also resistance to closure. People’s ingenuity and problem-solving capacities are taxed by challenges that remain underspecified even at the end. There is some evidence from Gestalt Theory that it is not just the visual field that seeks to close open structures, but that we have this tendency conceptually too (the Law of Closure: Koffka, 1935). Therefore, resisting closure as long as possible draws out more reflection in the activity, as well as on the activity, after it has finished (see also Schön, 1983).

4.2. Presenting anticipatory material and narrative objects

The globes that contain the briefs (Fig. 2) are not necessary to the running of the process. But they are doing some work. Feedback collected (at the end of the first of these workshops and 6 months later from the same participants – see s4.5) suggests they add occasion, focusing participants on the scale, context and possible significance of the task. The globes, which are loosely correct depictions of the Earth’s geography, remind of other places, bringing spatial concerns to meet the temporal ones inside. They are also a form of theatricality. So, subliminally, using them as a carrier is an influence. As the psychologist Moreno points out (1955), we do what we are warmed up to doing, so such framings matter. They suggest what kind of futures we might think about and can therefore be seen as anticipatory objects too.

The same influential relationship between the language of the invitation and the outcome of the exercise applies to the briefs too.

¹ Just as the Design Council’s *Double Diamond* (<https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond>) does not have a scale, but shows a series of moves, this diagram is an interpretation of directions, not a chart with axes.

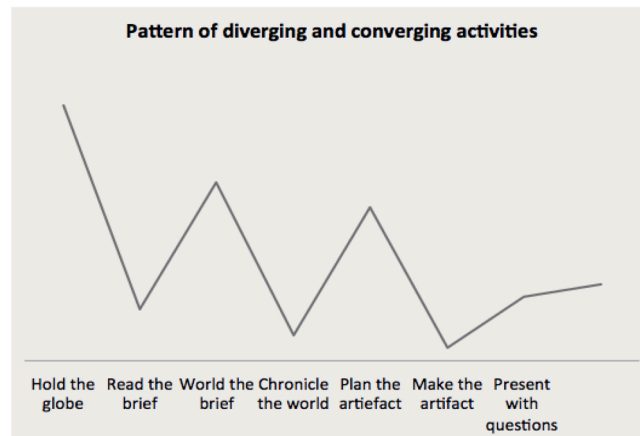


Fig. 3. Progressive narrowing of the creative space through the course of the exercise, using divergent and convergent thinking.

Therefore, I give some examples here:

- 1) The first workshop was intended to inspire innovative and more sustainable ways in a group of UK business people, researchers and designers interested in innovation (Brighton, 2016). Five worlds were made available to the participants: a United Kingdom still committed to the Catholic Church; the absence of a Russian Revolution; the collapse of Silicon Valley into the San Andreas Fault; the Axis Powers winning WW2; and this:

The Brazilian Rubber Monopoly persists

In 1876, Henry Wickham, on a mission from the Royal Botanical Gardens, brought seeds of the rubber tree from Brazil to the UK. At the time, Brazil held a monopoly on rubber. It was rumoured that the rubber barons of Manaus were so rich they sent their laundry to be done in Paris!

Both the British government and the American car manufacturer Henry Ford could see that the high cost of rubber was a barrier to the expansion of the motor vehicle industry – and anything else that required pneumatic tyres as well as a number of other manufacturing and industrial processes. Ford set up his own colony in Brazil in an attempt to produce cheap rubber. The British Empire took a more radical step and moved the rubber plantations to Asia where they could set up their newly grown rubber trees in a way that made rubber harvesting efficient and economical. By the 1910s, the monopoly was broken and rubber was available more cheaply from British Empire sources.

This counter-factual world imagines that the monopoly had not been broken and Brazil had kept control of the whole rubber market. Rubber remains expensive.

In this first iteration, I provided speculations, e.g. “Would there be less transport across the world and more virtual travel? Are there other effects that a lack of cheap rubber might have?” but this proved too much prompting and later versions cut back on leading questions.

- 2) Teaching about design and culture (and how cultures come to be) with first year undergraduates (UK/Sweden 2017–2021), one world was this socio-economically-oriented one:

In the 19th century, when poverty was growing fast, there was a practice of putting families in the workhouse if they reached destitution and could no longer look after themselves. Men and women were separated and given tasks to complete to support the economy and, in this way, they earned their keep. In a move to end poverty forever, this practice is taken up by the UK government in the early 1900s and it is now common for adults and children in poor families to be placed in work deemed necessary by the state in exchange for basic board. This has had the effect of sparing society the burden of the welfare state, but there is a backlash of people arguing that it results in a new kind of slavery, creates a society in which poverty is criminalized and reduces all social relations to financial transactions.

- 3) A third opportunity involved designers and civil servants (Malmo 2018) to consider the future of government. This time, all briefs had to reflect Sweden’s history, allowing for an orientation towards governance. The outcomes of the workshop supported a design request from the European Commission’s Joint Research Centre on Europe’s future governance strategies (see [Vesnic Alujevic et al., 2019](#)). This brief has a playful political focus:

Astrid Lindgren (1907–2002) is one of Sweden's longest serving prime ministers. After an early interest in writing fiction and career as a journalist, she follows her concerns about equality, justice and good fun for everyone into local politics. She has a very successful political career, in which she uses her common sense, style and ambition to suggest improvements to many aspects of the political process. In a surprise move, she is elected Leader of the Party in 1957 and, in 1961, her party wins the most seats at the General Election and she takes office. By the time she dies, in 2002, she has served as one of the most innovative and well-loved politicians of 20th century, using her understanding of creative issues to support the country's economic, environmental and social welfare and standing in the world. Many of the improvements she suggests have come to pass by this time.

Another brief, also for governance, shows how briefs vary within a theme. This one leans toward ecological thinking:

Lars Laestadius (1800–1861), the Swedish Sámi who founded the Laestadian pietist revival movement, has a mid-life conversion to the faith of his ancestors, which heavily influences religious developments in Sweden as a whole. Though varying considerably from region to region within Sápmi, traditional Sámi beliefs consist of three intertwining elements: animism, shamanism and polytheism. [...] While Lutheranism persisted in some parts, it became increasingly tinged with pantheism and animism...

There is no room for close reading to consider the anticipatory detail of how each brief works (but see Akama, Light, & Kamihiro, 2020 for a discussion of cultural sensitivity in the context of this last brief). More generally, it can be seen that the briefs are alternative histories – in some respects, scenarios. But they are also seeds, because, unlike scenarios designed to put focus on the ideas in the scenario itself, the briefs are a starting point for extrapolating far away. In this sense, they try to belie their own anticipatory nature by encouraging participants to speculate freely, putting layers of activity between the original (exogenous) ideas and creative outcomes. This move from the brief is important; it is also why the briefs became shorter and less prescriptive as I understood the potential of the combined *process + objects*.

Attending to exuberant speculations in these several stages, the outcome of working with the briefs relates only tangentially to the original material. In a significant sense, the stories become the participants' own, in making futures from the forks and running with their collectively-negotiated sense of what actually happened between past time (t1) and present time (t2) and, what might have happened between the alternative past (t1a) and the alternative present (t2a). This is also why the many stages represented in Fig. 3 are important. With each point of divergent thinking, conceptions are moving further from the original brief and, at each narrowing, the ideas being formed are more the group's own.

4.3. The artifacts made

As noted, there is a thread of *process + object* running through the workshop that culminates in making artifacts to embody learning from the worlds. The making has characteristics of three-dimensional sketching, though with online facilitation during the Covid-19 pandemic, this became 2-D sketching using a Miro board.² (The stages and collaboration were otherwise similar, using virtual breakout rooms for groupwork). This making serves at least three purposes: 1) introducing the opportunity of working with the hands, accessing a different part of people's creative potential; 2) using the design of things to consider where the world's values are located; 3) increasing the commitment of participants, but also the conceptual distance, as noted above, between brief and outcome.

Most resultant artifacts have been controversial. Artifacts solve problems but not in an engineering paradigm. In one example, a group made a confessional for talking about energy usage in a world where electricity was controlled by the Pope. In another, in which poorer populations lived in the air on flying machines and had to be mindful of the quality of the stratosphere, the group made an airship with special designs for growing-your-own. An "Axis" group (in which racists run the world) developed a cultural surgery programme, where, for a fee, your social media, biological signals and other identifiers could be stripped of unacceptable ethnic traces. Animist worlds struggled with the vulnerability of being a small part of a globe dominated by colonialism, looking for ways to protect their values while upholding them. The most successful design in these respects was the energy festival (like controllable Northern Lights), demonstrating power to others while enjoying this in celebratory ways. (It is worth noting, that energy has never been introduced as a theme, despite informing so many outcomes).

Each workshop is followed by a discussion about values and how the exercise demands that ends and means are integrated. By requesting an artifact that shows the values of the society, the question of how values are embedded and might need to change becomes central. To paraphrase the craftivism movement, 'if we want a world that is beautiful, kind and fair, shouldn't our activism be beautiful, kind and fair?' (<http://craftivist-collective.com>). In the workshop, such concerns come to the surface.

4.4. Tools of engagement

It turns out that, if designed to work together, artifacts are not easy to disentangle from process and vice versa. But this section attempts to look at the framing for the artifacts and focus on aspects of *process*. I dwell on these design factors for two reasons: first, they seem to be effective in these (Global North/European) contexts and deviations have proved less so; second, they allow us to revisit speculation and examine the politics.

² www.miro.com.

4.4.1. Time

The process was designed to exploit (Global North dominant) temporality and trajectory to provoke people to consider where humans sit in global terms, how to support local ecologies of living beings and what planetary priorities should be. In other words, temporality (and historical legacy) is not only the device to engage participants, but is also the intended gaze: awareness of changing ecologies; consideration of sustainability and/or renewal; and the agency of setting and attending to priorities foregrounded. The counterfactual process in this workshop activity aims to lessen the challenge of having to envision a future to reflect back on this present. Instead, past and present are used to give a depth of resonance to possible futures that extend beyond simple scenario use.

While much of the workshop is focused on the making of an alternative past-to-present trajectory, captured in the products of the alternative now, actual history (as it is understood and interpreted) is always a reference point and comes into play when the different alternative presents across the group are assembled. The present becomes interrogated by its position between five other realities, all more or less caricatured versions of the original. This is apt, because the goal is not to rewrite history, but to arrive at a moment together in the present of the workshop that offers a different future or futures.

This relationship between the process, the present and, thus, imaginable futures persists, regardless of the briefs. This persisting relationship frees me to customize briefs according to who will use them; briefs for first year students in my classes are simpler in language and political knowledge than those for a group of experienced environmentalists (such as those convened at the Lorentz Centre, Netherlands, to study counterfactuality in 2018).

It is interesting to think about this time-travelling from an environmental perspective. As the International Panel on Climate Change points out, changes that affect the present and our choices, as well as futures, are being baked in now (IPCC, 2018). In other words, care for futures – our own and those of other species – always happens *now*, not later. Engaging with time so deliberately and deliberately begins to address Andersson's concern that our futures are being conceptually hollowed out (2018), reintroducing ideas of trajectory, path dependency, responsibility, preparedness and consequence in place of risk.

4.4.2. Randomness

Randomness has long been a good device for disconcerting participants in workshops (e.g. Light, Briggs, & Martin, 2008) and for opening a space where, for a moment, it feels possible that anything could be ahead. In a sense, it is freedom from anticipation, where, in that space of waiting for the reveal, no particular future bears down on the present. In the workshop structure, it is made manageable by keeping it to a very limited form introduced only at outset. The first iteration of the workshop played with the idea of introducing other random variables during the creative process. It was clearly unnecessary and interventions were removed for the next version. After the initial brief is randomly assigned, the groups work autonomously for most of the workshop, given workshop structure, but no further content.

4.4.3. Multiple worlds

A linked issue is why there is more than one brief for any workshop. It has been proposed that if people were given the same brief as each other, it would increase comparability and therefore reflection. I see this differently since it is a co-creation opportunity not a scientific study. With five groups working on the material provided by their globe, there is opportunity to look at multiple types of change and consider parallel paths and choices. As noted, if we regard the exercise as a way of repositioning futures for our actual presents, being in multiple presents is a way of complicating paths ahead and increasing the imaginaries that fall out – we can be inspired and surprised by intersections in narratives, rather than simply comparing notes on the departure point. Of course, it would be interesting to conduct further variations on the structure.

For now, I note that our populations live in multiple worlds politically and ontologically, as well as interpretatively, with different access to resources and capabilities. Since each brief has a different orientation – as noted: material, infrastructural, religious, philosophical, governance, sociotechnical, etc. – a benefit of the multiplicity is that it throws each concern into relief and opens resource distribution, ideology and governance models for discussion. To my mind, this increases the variety of what is considered in terms of orientation as well as values. But this makes hearing each other's brief after the first stage important structurally, to increase interest in each other's work and to bring a broader perspective to what goes on in each smaller unit.

This fruitful tension in orientation can be shown by looking at a pair of examples mentioned above. Both the Rubber and Animist briefs are about the natural world, yet they produce different results. The first has produced flying houseboats, a concern for the stratosphere and a prizing of rubber goods. Through all its iterations it has remained human-centric, despite the fact that the Rubber brief is extensively about trees, a different species. It is always read materially, about an extractive/extracted commodity and the impact this has on innovations. By contrast, the Animist brief deals less with other lifeforms in its text, but becomes a radical stimulus, calling into question relations between people, countries and species and what inclusion might involve if we go beyond issues of language, literacy and culture to look at all the impacted lifeforms. This brief regularly produces a richer discourse on more-than-human lives. Though the design of the worlds has been far-fetched, the thinking about ways of living is more profound. Having both in a final discussion has enabled people to recognize what they are concerned with and also what they are not thinking about. It can be, itself, an act of inclusivity, foregrounding coloniality as an influence and the plight of other lifeforms without a direct voice.

4.4.4. Opening, closing and travelling

The point of breaking into small groups and staying with the ideas in the group has been explained above, as has the journey through opening and closing of ideas and the trajectories in time. These matters find intersections in the flow of the process. The rhythm uses the presence of other people/groups to drive several stages of inventiveness, moving towards definitions of the created worlds and leaving alternative pasts behind. The intersections produce a design space prepared to encourage participants in their

creative thinking about making different. In these ways, the structure has supported the “seed-ness” of the artifacts, despite their narratives.

4.5. Experience, feedback and evolution

I have argued that, in combination, process and artifact contribute to the experience of participants in a way that can engage them, moment by moment, to offer their own creativity to speculating. But to have an impact intellectually and affectively in a one-off event is challenging. It became an iterative design challenge to learn and build on what could be achieved to stimulate a sense of agency; getting feedback on impact. Did it change views: that something different is possible; that rethinking is doable? A colleague contacted the first 20 participants (UK innovators workshop, 2016) after 6 months to see what had stayed with them from their workshop. This section presents feedback about what lingered from the experience.

We asked what participants remembered from attending. Half responded; all those declared the workshop to have been ‘memorable’ or ‘very memorable’ in a closed-choice question, also answering an open-ended question as to *what* was memorable:

- ‘The excitement of opening our team’s globe and the initial challenging conversations to imagine and agree and start making. The tour of others’ worlds, some quite elaborate and one that was completely unimaginative, which I thought was sort of sad for that group. We weren’t there to listen but to generate, play, move, interrogate, and in other ways remix.’
- ‘The concept of alternative presents as a way of generating different futures. I’ve discussed it with a number of people - particularly in the context of climate change - and although I haven’t yet had time to explore this fully in my own work I am hopeful that time will come when I can do so.’
- ‘The ways in which some relatively simple historical changes led to: - the creation of intricate, fascinating alternate worlds - a renewed sense of how our actual world’s come about by accident as much as design. The different, deeply creative ways that attendees brought their new worlds to life. The new-world-generation machine that kicked off the workshop!’
- ‘The mix of big historical thinking, and making something from that imaginative time. How this permitted people with quite different things to contribute to do so together ...but I also recall thinking where the ideas might go beyond what we took individually from it. That was one of the other good things about it: thinking how something like it could be used in other processes in which I am involved, and with different people.’
- ‘I really enjoyed the ideas we came up from generated by our counter-factual context of the Russian Revolution fails. I have shared some of the digital innovations we came up with some tech entrepreneurs and one of them may actually get made!’

Design workshops are likely to be memorable if fun, but the detail is significant here. People recalled thinking about how the world might have been different and how change comes about. The objects feature (e.g. the globes), but so does the process. There are three unsolicited references to follow-up. It may not have been enough to change practice, but it seemed to lodge in consciousness.

The framing of the workshop has evolved, based on this and other insights. In the first version, there was little discussion about the impact of the future on the present. There was potential for making the politics of temporal relations clearer, beyond provoking creative thought about a changed world. Adjusting the last stages to increase the articulation of temporal politics has already yielded more explicit consideration of how futures are managed. Later versions have also included discussion about the depth of time that is helpful to go back (too recent and people cannot use their imaginations with full exuberance) and how much knowledge is needed to feel confident in various times and alternate realities (pasts, presents and futures).

However, I note that gathering data on the *experience* of workshops does not supply insight into whether they lead to change in perspective or practice. Enjoying something, and even being affected by the theme, is no guarantee of other impact. Assessing hybrid artifacts is a process in itself: entangled in the articulation of hopes, goals and values, evaluating may involve incorporating reflective/discussion time, but that reflection may itself be a significant part of the transformation process. If so, it needs always to be incorporated in turning a speculative anticipatory object into a move to action. While, in our research, people said they considered new approaches - and there is no reason to doubt this - testing systematically what is effective in experiential learning, particularly in groups, is a challenge. The next section goes on to explore other, related, issues about what we can know and claim for this kind of process.

5. Discussion and critique

The presented study will not change the world, but it is useful for examining the relation of objects and processes in considering how people might think more about temporalities, transformation and world-changing. Both objects and process have been carefully attended to and a balance of direction and openness sought. In the language of Table 1, I tried to avoid both irrelevance and pointlessness. My target is (relatively privileged Global North) groups where lifestyles need to change most. It would be interesting, but as yet untried, to take it to more marginalized groups to learn what it might offer people more remote from the making of futures (as Light, 2011). Yet, even carefully designed speculative opportunities will only be useful in modest ways, working better for some participants than others and leading each to different outcomes - as all materials do, but especially those linked to experiential learning (cf Beard, 2018). The workshop has run more smoothly with people used to creative and critical thinking than those of a more practical bent (see Hillgren, Light, & Strange, 2020). That gap needs consideration, and, as well as providing a further design challenge, this demonstrates that many forms of speculative work are needed for democratizing to flourish. Counterintuitively, one of the successful counterfactual briefs across national and cultural boundaries is that on the Swedish turn to animism. It can be used as a contrast to

more traditional structures, producing thoughtful responses while troubling the nature of the other worlds being created (Akama et al., 2020).

There are obvious limitations, such as the workshop's understanding of the flow of time (the case study is very much based on a dominant linear Global North view), the demands of attention and collaboration that it makes, which are in short supply in the very arenas in which it seeks to act, and the relative complexity of the messages and feelings it seeks to convey, which may exclude publics because they have such strong preconceptions (such as insurmountable individualism) or other barriers. The usual methodological caveats about a case study process, which cannot be systematically tested, apply. No group is the same twice, even with the same people, for experience moves on and contingencies profoundly affect groupwork. Further, the technique plays differently if it is nested in a larger process of transformation. Although I have been describing it as a stand-alone event, it has usually been one component of something more sustained. For instance, embedded in a curriculum, it does different work according to the theme and what surrounds it. Placed as part of a series of engagements, it takes some of its direction (down to the choice of briefs) from that wider process, which mediates the experience of the workshop, frames it and supports or subverts its significance.

I have run these workshops long enough, however, to have confidence that some of what I observe is not accidental. There are other ways to come at this challenge, but I outline the design in detail so that it can act as an illustration of process, engagement and prioritizing a sense of agency in participants. It is far from the only process for considering different socio-ecological arrangements; it merely has the advantage that, having worked with it over years, I understand how the components support each other to reappropriate some of the designer's agency.

In other words, where the creative energy lies is salient. Involving people in a design process is an important tactic for getting people to care and consider more deeply what they are discussing. I would suggest that collaborative learning opportunities increase interest in the topic and encourage critical thinking. Making and reflecting together deepens this collaboration and what is experienced. Designing the *process + object* with these insights increases the potency of what the hybrid achieves. Using counterfactuality, as this case study does, introduces further opportunities, for, in considering temporal matters and using a journey from pasts to presents, other dimensions of anticipation and future-making can be mobilized.

Adams, Murphy, and Clarke, 2009, p254) write that anticipation is not only an epistemic orientation toward the future, but a moral imperative in which life, death, identity, and prosperity are at stake personally and collectively. 'The obligation to "stay informed" about possible futures has become mandatory for good citizenship and morality,' they say. Amsler & Facer (2017b, p13) argue that liberating the future from the enclosures of capitalism is 'an experimental process of generating and enlarging the space of possibility itself through practices of critical, disobedient anticipation'. When such sentiments resonate, one must align one's practice and I have used this study to show how this alignment can be attempted. *On Some Other World* aspires to be critical and disobedient (see Korsmeyer et al., 2021, same issue).

5.1. Who owns our future(s)?

The motivation for this paper is to democratize futures, acknowledging that speculative design creates 'anticipatory objects' that invent futures while seeking to inform on specific designs (see Weiser's creation of "calm" digital technology as a case in point, Kinsley, 2012). To this end, I have tried to characterize 'seeds' and reveal how the different components of a hybrid *process + object* design might work for engaging publics in democratization of futures, without adding further anticipatory objects to the futures handed to publics. I have used counterfactuality, because attention to the past and present emphasizes the politics of futures, accepting that what is to come is neither predictable nor radically open, but should be open to everyone to consider for its bearing on the present. I further suggest that access to futures must be open in three respects, if it is to be open at all: first, it must understand the constituency to be included as all humans and (representatives for) other lifeforms and future generations; second, it must design sensitively and intelligibly for this radical inclusivity; third, it must design to share agency in these considerations and their outcome.

I said at outset that the intention was to give greater democratic access to designing, to understand design as a democratic principle of life and promote everyday (bottom-up?) reflection on futures (Light, 2020). In the process, part of the work is to reveal the 'designed, therefore designable' nature of the world (Light, 2011, 2020) for people who do not consider what a fork in the trajectory of politics, materials development or philosophy might yield. While participating in a workshop rarely makes a transformation, it can start one (e.g. Clarke, Briggs, Light, & Wright, 2016). This throws responsibility on the process to go beyond a provocative object or intriguing story to address engagement in contemplating different futures (and, here, path dependencies, the resistance of infrastructure and the power of alternatives) as a matter in itself. The example of counterfactuality (going-back-to-come-forward) shows itself to be more than merely another device, but one that reveals our agency as populations in both positive and frustrating ways. It highlights logics and values as well as the potential to destroy and create. It is this double-headed approach that makes it particularly useful to deconstruct – as an exercise and as a case study here. It hints at possible formation of publics round objects (cf Marres, 2015) but also round *processes* of concern.

How inclusive is it? Prado de Martins (2014) challenges speculative design to move beyond its privileged focus. The example of process here relies on temporal relations, not specific content, to bring people together and through an experience. This might free it from some of the constraints that most engagements introduce through their materials: any culturally-specific starting point can be created; anyone can come to work with others to make alternatives. The point is to allow people to negotiate their own visions. Dunne and Raby say 'futures are not a destination or something to be strived for but a medium to aid imaginative thought' (2013, p2) and in striving to detach designer control in this process, briefs that acknowledge the user group rather than the designer's vision can push towards the political potential of an engaged and collaborative form of democratizing.

5.2. Continuities

Raskin and Swart (2020) argue there are too many continuities in the deployment of scenarios as a way of thinking about futures, thereby reducing the space for alternative visions. Yet, many visions of the future involve a disconnect – an evocation of a high-tech fantasy, with roots in greater sales or more control, but no reference to popular hopes or challenges (such as fairness and a bountiful climate). There are continuities we need, such as paths to an alternative vision that promise rupture with undesirable or unsustainable practices. Anticipation, with its insight into the future's domination of the present, implicitly contains a promise/threat of continuities. But these are rarely sketched as part of speculation, which, in works like Jeremijenko's, may be shocking and dystopian, rather than focusing on agency. Nonetheless, dystopian routes are as valuable as utopian ones, if not more so, for showing us what not to do and how not to get there.

A good example of describing continuity is Haraway's sequence of *Camille* stories (2016), where the journey from a damaged world to an alternative way of living is mapped in tales that span five generations. Yet, the same argument about reducing the creative space for others' ideas can apply, even to the *Camille* stories. We are on the author-designer's journey.

The argument here is for careful processes in which to embed narrative/material objects as seeds, so that they may take root, not just as possibilities for alternatives, but as part of a journey towards these alternatives. The value of the temporal dimensions in the example used in this paper is that it demonstrates a way that journeying, design agency and continuity towards discontinuous futures may be incorporated for groups of people working together into one single workshop structure.

6. Conclusion

This paper has attempted to show the value of speculation as a collective and co-created process. While much speculative design aims to promote more future-oriented critical thinking through better anticipation of these kinds of issues (e.g. Malpass, 2013), speculative design is often designer-centred, emphasizing the designer's own concerns. The process described here, by contrast, focuses on engaging a group of participants in developing their own concerns, offering them the chance to hold the world in their hands and to account for it.

Human-centred may be read as *self-centred* in contrast to work on multi-species and more-than-human design, so briefs encourage people to think beyond their own futures, conventions and boundaries and beyond merely engaging with the aesthetics of speculation (cf Gerber, 2018). By equipping people with confidence in their visions and a sense of agency, we do not ignore the considerable challenges facing the lifeforms on this planet, but we equip the most impactful species with some reflective tools on that relation. In doing so through simple workshops with minimal material demands, we avoid using significant resources. This case study is given as an example of how inclusive participatory design and speculative design can meet and produce the practical methodological considerations that accompany the political intention to create more meaningful, diverse and inclusive potential for anticipation. In other words, structuring people's encounters with speculation is an important tactic for helping people to consider together what happens next and how thinking about these matters is a first step to bringing the future to bear more creatively in the present.

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